

Easy Pathology

— Dr. Abdelrahman Khalifa —

Chapter 5

Granuloma

Part 2



VISIT...

LANZAROTE
Caliente.COM

سيفيليس ← **Syphilis** → Type of granuloma cause by bacteria

Chronic granulomatous, **venereal** disease, caused by Spirochetes (Treponema pallidum) *invenere bacteria*

Mode of transmission

- **Contact** : e.g. sexual contact (genitals, lips, tongue) → (Acquired Syphilis) = Venereal disease
- **Blood** : e.g. Transfusion
- **Trans-placental** → (congenital Syphilis)

Syphilitic reaction: *general syphilitic reaction*

- **Cellular**: Chronic inflammatory cells (lymphocytes, Epithelioid, giant, fibroblasts) with excess **plasma cells** *VIP*
- **Vascular**: Plasma cell vasculitis → early **end arteritis** obliterans with intimal fibrosis leading to→
 - Tissue necrosis (Coagulative)
 - Granulation tissue & fibrosis
- **LN**: Proliferation of lymphoid tissue in LN *enlargement*



Acquired syphilis

(venereal: sexually transmitted)

1. Primary Syphilis (**Chancre**) after 2 weeks

Sites: genital organ – extra genital (e.g. lips, tongue, nipple, anus)

Gross: Painless **papule** → **Ulcer** (sharp edge – pale infective floor)

Fate: Healing (no scar)



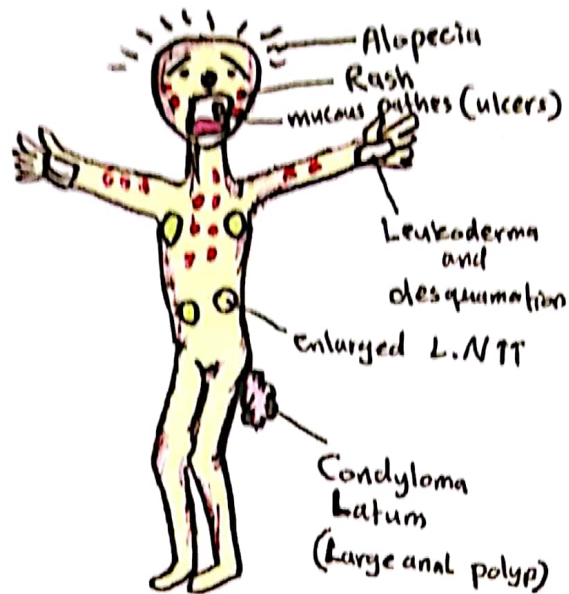
2. Secondary Syphilis (muco-cutaneous and lymphoid) after 2 months

- Alopecia
- Skin Rash
- Mucous Patches in the tongue (ulcers)
- Generalized Lymphadenitis & splenomegally
- Leukoderma & desquamation of palms
- Condyloma latum : large flat polyps (in anus)

• LN = enlarged
• splenomegaly



2ry syphilis



3. Tertiary Syphilis _after 2 years

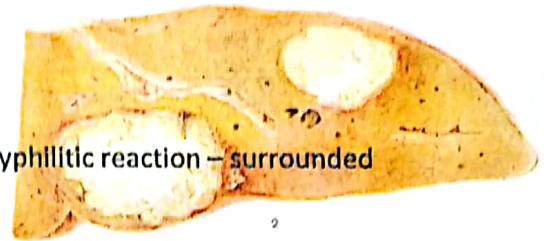
Gumma (local)

Sites: Organs (e.g. liver), Mucosa (e.g. tongue)

Gross: Irregular - rubbery - grayish white

Microscopic: Coagulative necrosis - surrounded by Syphilitic reaction - surrounded by fibrosis.

e.g. **Hepar lobatum**



Diffuse syphilitic reaction

Syphilitic Aortitis:

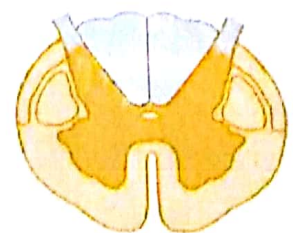
Site: Ascending thoracic aorta

effects:

- Aneurism
- Coronary orifice stenosis
- Aortic valve prolapse

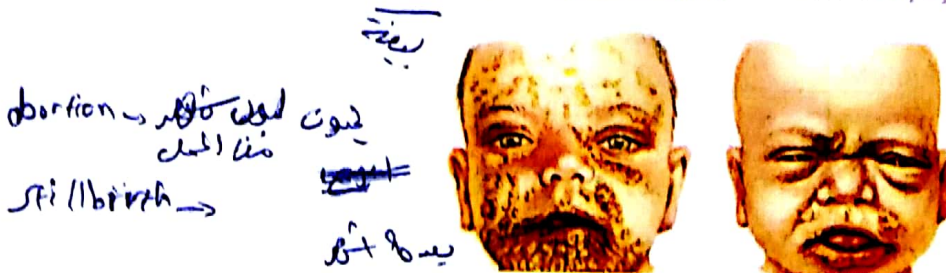
Neurosyphilis:

- Meningovascular: Meningitis + end arteritis
- Tabes dorsalis → loss of sensation
- Generalized paralysis of Insane (GPI)



Congenital syphilis

Leads to → **abortion** and **stillbirth** or **congenital anomalies** in surviving babies (CNS lesions - Pneumonia Alba - hepato-splenomegaly - lesions of 2ry syphilis enumerate?)



الجذار / البلهار

Leprosy

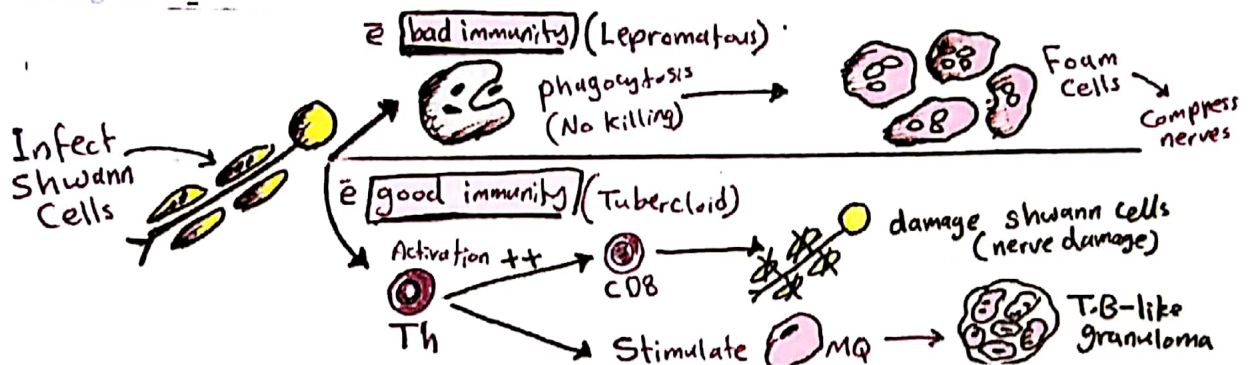
Peri-neural granulomatous disease, caused by mycobacterium lepra

Organism: mycobacterium lepra (acid fast, stained by modified Z-N stain of Fite Farco).

Organism arranged in globules (cigarette in a pack)

Mode of transmission Inhalation : of damaged tissue containing organism

Pathogenesis:



	Lepromatous leprosy Nodular	Tubercloid leprosy Maculo-anesthetic
Immunity	Relatively lower	Relatively better
Skin	-more lesions (symmetrical) -Macules + Papules (<i>Leonine face</i>) 	-less lesions (Asymmetrical) -Anesthetic <u>Macules</u> 
Nerve lesion	Sensory & motor loss is less common	Sensory loss → Trophic ulcers Motor loss → muscle paralysis
Micro	-macrophage containing bacteria (foamy cells) -Separated from skin by clear zone (grenz zone)	- TB-like granuloma with NO caseation (<i>describe</i>) -the lesion is peri-neural
Lepromine test	positive	Negative
Bacteria	more	less

Indeterminate leprosy: early stage – may heal spontaneously

Borderline leprosy: mixed type (lepomatous & tubercloid)

Diagnosis: nasal discharge culture – Biopsy from skin – Lepramin test

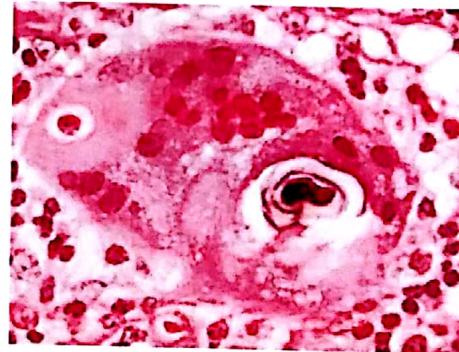
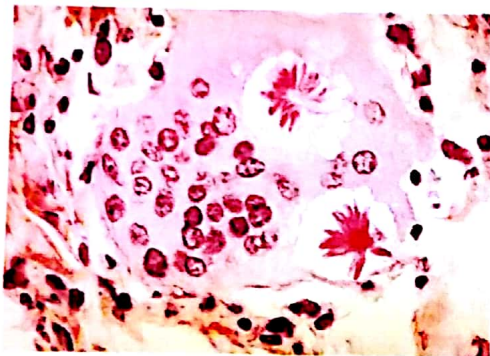
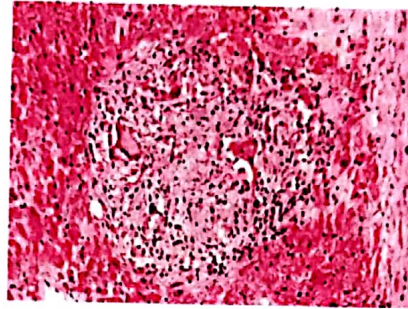
Sarcoidosis

Systemic **Non-caseating** granulomatous disease, of **unknown** aetiology

Affects males & females 20-40 y. Could be immunological or genetic

Microscopic:

- **TB-Like** granuloma (describe?)
- **Non** caseating
- Naked granuloma (**No** lymphocytic rim)
- Healed by fibrosis
- **Inclusions** inside giant cells :
 - **Astroid** bodies: eosinophilic star-shaped inclusions
 - **Schauman** bodies : Laminated concentric bodies (Ca + iron + protein)



Sites:

- **Eye (50%)** : Xerophthalmia
- **Salivary glands (parotid)** : Xerostomia. *Mickulicz disease* = Xerophthalmia + Xerostomia
- **Lung (90%)** : nodules → fibrosis → pulmonary hypertension (cor pulmonale)
- **Hilar & tracheal L.N.**: Large, firm & discrete → compress bronchi → dyspnea
- **Skin (25%)** : Violaceous plaques – Erythema nodosum
- **Hepato - splenomegaly**
- **Bone & bone marrow (40%)** : mainly short bones → radiolucent lesions

Fate: 70%: recovery, 20%: Lung Fibrosis, 10%: Cor pulmonale 10%: ocular complications

Diagnosis: Clinical – Exclusion of **TB** – LN or lung biopsy - elevated **ACE** & vit D (secreted by macrophage), **hypercalcemia**

Actinomycosis

Suppurative Chronic granulomatous disease, caused by actinomyces

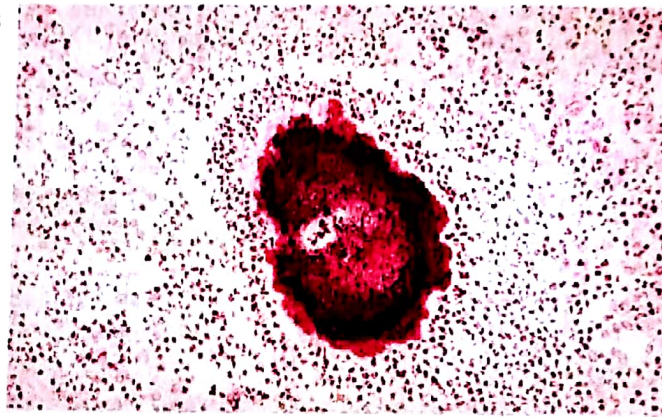
- **Organism:** Actinomyces Israelii (anaerobic flora of oro-pharynx, vagina and intestine)
- **P.F.:** Mucosal injury

Gross:

- Multiple abscesses with multiple sinuses
- Pus is thick, yellow 'sulphur granules'
- L.N enlargement is not common (due to thick pus)

Microscopic:

- Bacterial filaments (basophilic), surrounded by acidophilic clubs (Ig)
- Surrounded by mixed granuloma with excess pus cells
- Granulation tissue & fibrosis



Types:

- **Cervico-Facial 60%**
 - After injury of oral mucosa (e.g. traumatic ulcer, dental lesions)
 - Gross (as described) , Micro (as described)
- **Intestinal (Abdominal)**
 - After injury of intestinal mucosa (e.g. ulceration), or swallowing oral pus
 - Appendix – cecum - ileum
 - Spread → portal blood → honey comb Liver → spread to diaphragm → Lung
 - direct → peritonitis → open into abdominal . wall → skin sinuses
- **Thoracic**
 - From blood spread - oral aspiration – or spread directly from liver
 - Affect the base of the lung
 - Pleural spread → **empyema** → open into chest wall → sinuses
- **Pelvic** in females associated with IUCD



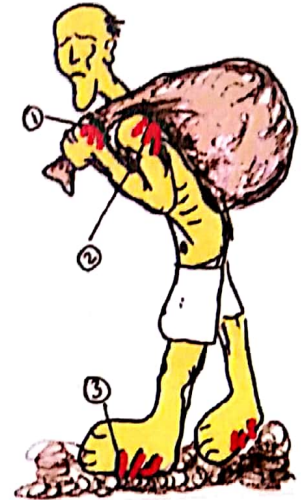
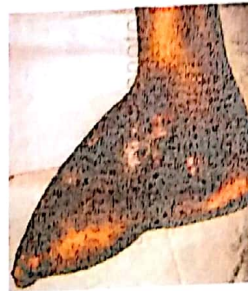
Mycetoma

- **Organism:** **Bacterial** Mycetoma (actinomyces nocardia) or **Fungal** EuMycetoma (Madurella)
- **P.F.:** Bare **Skin Injury** (hand-foot – shoulder) + contaminated with **soil**

Gross:

- Swelling with multiple sinuses
- 'sulphur granules' Pus is thick, yellow (**bacterial**) or black (**fungal**)
- Bone and muscle necrosis

Microscopic: similar to actinomycosis



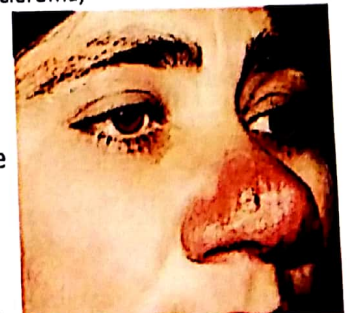
Rhinoscleroma

Chronic granulomatous disease, caused by **Klebsiella** Rhinoscleromatous
More in females 20 -40 y

Mode of transmission: Inhalation → rhinoscleroma, laryngeoscleroma, pharyngeoscleroma,

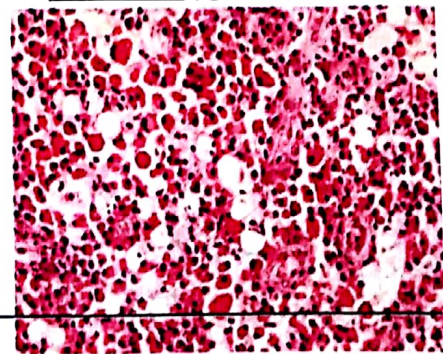
Gross:

- waxy granules → rounded **nodule**
- **Destructive** lesion: compression & destruction of surrounding tissue
- **Deformity:** healing by fibrosis & scar formation



Microscopic:

- Covering epithelium: Ulceration - Hyperplasia – Squamous metaplasia
- Core :
 - Chronic inflammatory cells (lymphocytes, plasma, macrophage) with:
 - **Mickulicz cells:** Numerous macrophage with foamy cytoplasm, containing bacteria
 - **Russel bodies:** hyalinized eosinophilic plasma cells (Ig- rich)
 - Granulation tissue
 - Fibrosis (later)



Clinical: slowly progressive

- Rhinitis
- Anosmia
- Hoarseness of voice & Asphyxia

Filariasis

Chronic granulomatous disease, caused by *Wucheraria Bancrofti* parasite

Mode of transmission: Culex mosquito → parasite infects Lymphatics & L.N.s

Microscopic:

- Dead worm – surrounded by inflammatory cells & eosinophils
- Lymphangitis
- Lymphangectasia (dilated lymph vessels)

Clinical:

Acute Fever – eosinophilia – Lymphadenitis – Orchitis

Chronic:

- Lymphedema:** in Lower limb – arms – genitals
- Elephantiasis:** Thick firm skin due to 2ry infection & fibrosis
- Hydrocele**
- Lymphadenitis:** Inguinal & femoral
- Subcutaneous nodules:** Inflammatory reaction around dead worm



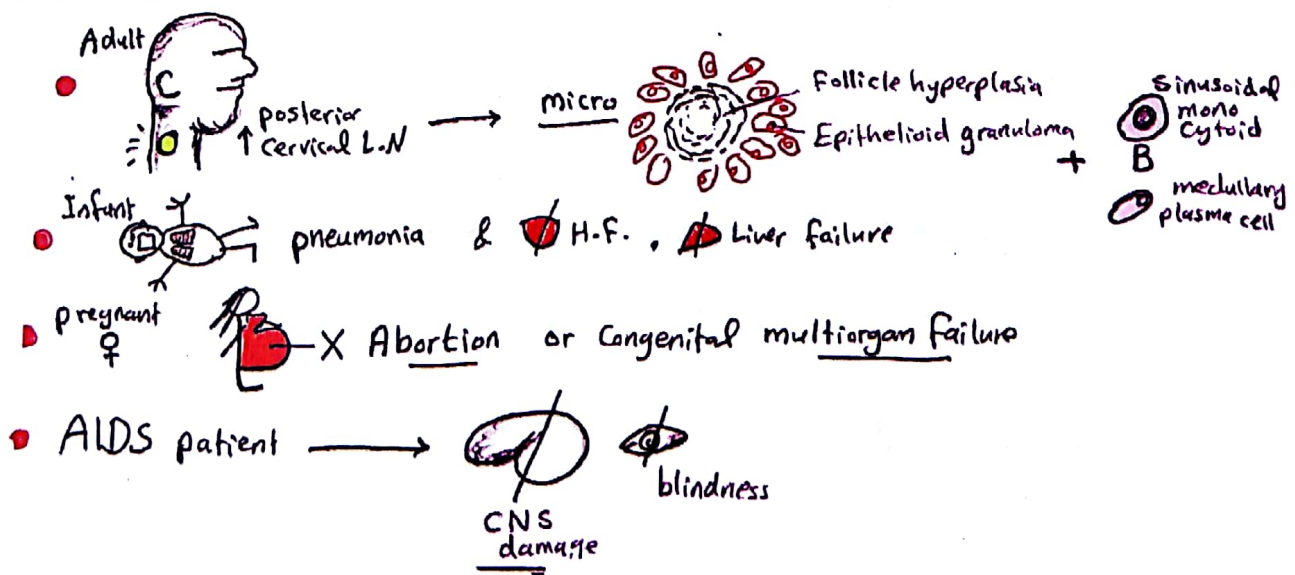
Toxoplasmosis

Chronic granulomatous disease, caused by *Toxoplasma gondii* parasite



Mode of transmission: ingestion of contaminated food or meat (cats are carrier)

Pathological effects:



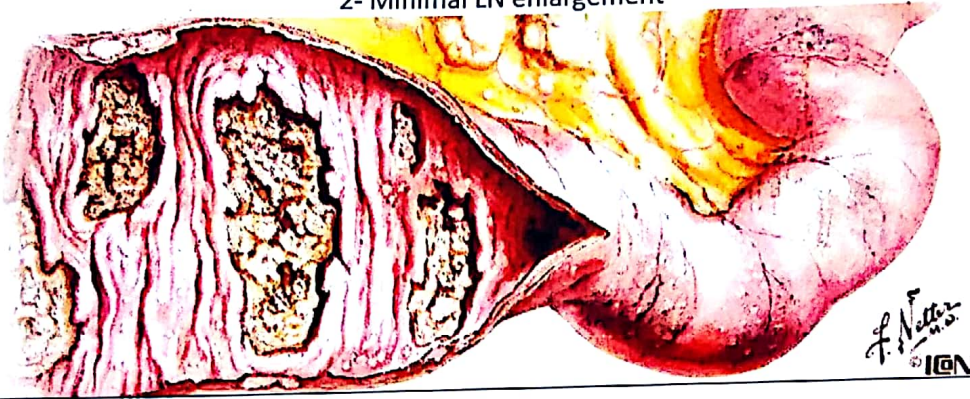
2ry intestinal TB

- swallowing sputum from Lung
- Reactivation or re-infection (bovine)

More in Adults

Ileum → cecum → ascending colon

- 1- Multiple fused ulcers → girdle ulcer
Undermind edge, caseating floor, transverse ulcers
- 2- Minimal LN enlargement



Complications of TB +

-Complications of Ulcer:

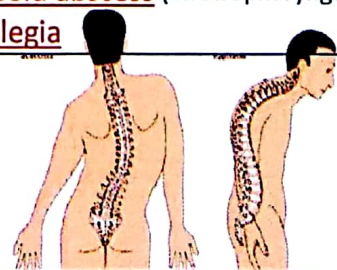
Bleeding – 2ry infection – fibrosis and stenosis – perforation and fistula

TB of L.N.

- **Common Sites:** Cervical LN – Hilar LN – Mesentric LN (why?)
- **Gross:** Enlarge, firm, discrete then → Fused (matted) and cheesy
- **Complications:** complications of TB (enumerate...?) + Cold abscess → sinus

TB of vertebrae (pott's dis)

- **Gross:**
 - Tubercles (describe) at the lower thoracic, upper lumbar vert. → caseation
 - Caseation of vertebral **bodies** with damaged intervertebral disc
- **Complications:** complications of TB (enumerate...?) + Cold abscess (e. retropharyngeal, mediastinal, lumbar) + Deformities (kyphosis, scoliosis) + Paraplegia



True/ False:

- 1- Regional lymph node is commonly enlarged in actinomycosis ()
- 2- Lymph node enlargement is extensive in 2ry TB ()
- 3- Sandy patches are areas of atrophic granular mucosa ()

Complete

- 1- The most common site of Syphilitic periostitis is
- 2- The pathognomonic cell of Rhinoscleroma.....
- 3- The edges of T.B ulcer are.....
- 4- Types of Bilharzial polyps And.....
- 5- Miliary TB is fatal due to.....
- 6- Elephantiasis is caused by.....
- 7- Causes of pulmonary actinomycosis include.....,.....,
- 8- Sarcoid granuloma is showing calcified inclusion which is named.....
- 9- TB-Like , non-caseating granuloma is found in and
- 10- Perineural granuloma is a characteristic feature of.....
- 11- Plasma cell vasculitis is seen in.....
- 12- Chancre is the primary lesion of
- 13- Gumma is formed of,,
- 14- Pneumonia alba is found in syphilis
- 15- Condyloma latum is found insyphilis
- 16- Granuloma which is not caused by infection
- 17- Fungal granuloma is seen in.....
- 18- Parasitic granuloma which is transmitted by cat faeces is.....
- 19- Eosinophilic clubs in actinomycosis are formed of.....
- 20- Russel bodies are hyalinised.....cells
- 21- Direction of Ulcers in secondary intestinal TB is
- 22- Precancerous parasitic granuloma
- 23- Vitamin D is secreted by..... In sarcoidosis
- 24- The commonest site of Actinomycosis is
- 25- Pelvic actinomycosis is predisposed by.....
- 26- Lepramin test is in tubercloid leprosy
- 27- Leonine face is associated with
- 28- Leprosy is transmitted by.....
- 29- Mycobacterium lepra is primarily infecting.....cells
- 30- Asteroid bodies are seen in.....

Discuss: Pathogenesis of Cavitation in 2ry T.B

.....

.....

.....

.....

Explain (Give reason for):**Tabes mesenterica:**.....
.....
.....**Trophic lesions in Leprosy:**.....
.....
.....**Swollen limb in filariasis**
.....
.....**MCQ:****1-Sarcoidosis is**

- a-Granulomatous inflammation
- c- Diagnosed by sputum culture

- b-Caseating granuloma
- d- showing hypocalcemia

2-Granuloma is commonly seen in the following lesions (Except) :

- a-Gohn's focus
- c-Tubercloid leprosy

- b-Splenic bilharziasis
- d-Lepromatous leprosy

3-The commonest site of 1ry pulmonary focus is:

- a-Apex of the right lung
- c- Base of the left lung

- b-Apex of the left lung
- d- non of the above

4-The following are complications of Bilharzial portal hypertension (except):

- a-Liver cirrhosis
- c- Ascitis

- b-Hematemesis
- d- Pulmonary bilharziasis

5-Mickulikz cell is:

- a-plasma cell
- c- Macrophage

- b-Epithelioid cell
- d- non of the above

Compare:**1ry -2ryintestini TB****Lepromatous leprosy – Tubercloid leprosy****Sarcoid granuloma – TB granuloma****Actinomycosis – Mycetoma (organism – sites – gross)**